

REMARKS

1. Claims 1, 3, 6-8, 10, 13, 14 and 18-30 and 32-41 were last presented for examination. Claims 1 and 3 are rejected and claims 4, 6-8, 10, 13-14, 18-30 and 32-41 are objected to in the current Office Action. By the foregoing Amendments, all pending claims have been canceled, and claims 42-69 have been added. Thus, with entry of this paper, claims 42-69 will be pending in this application. Of these 28 claims, four claims (claims 42, 57, 66 and 67) are independent. Other than for minor typographical changes, these new claims are the same as those pending in this application prior to entry of this paper. Accordingly, these amendments are believed not to introduce new matter and their entry is respectfully requested.

Examiner Conferences

2. Applicants thank the Examiner for the two telephonic conferences conducted on July 21, 2003, and the third conducted on July 22, 2003. In those discussions the Examiner indicated that the version of the claims currently pending in the PTO matter file were different than those submitted by Applicants. The Examiner indicated that this discrepancy appears to have originated with the processing of Amendment A filed July 12, 2002, in which the PTO misplaced the marked-up claims of that paper. Additional claim amendments were made since then as well, further compounding the discrepancies. The Examiner and undersigned agreed that in this paper Applicants cancel all pending claims, and resubmit the same claims as new claims to insure accuracy of the PTO matter file from this point forward.

3. The Examiner also indicated that the claims that were objected to in the current Office Action due to the above confusion, not due to his decision that such claims recite allowable subject matter. The Examiner, however, acknowledged that the current Office Action contains new grounds of rejection (a Section 103 rejection based on US 4,660,157), and that Applicants' prior arguments regarding a previously cited reference relied on by the Examiner (US 5,760,781) have been deemed persuasive.

4. Given the above, the Examiner indicated that the next Office Action, if any, will be made non-final. The Examiner also agreed that he will contact the undersigned if he believes an interview would be helpful.

Claim Rejections Under 35 U.S.C. §103

5. The Examiner has rejected claims 1 and 3 under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 4,660,157 to Beckwith *et al.* (hereinafter “Beckwith”). Applicants respectfully traverse these rejections with respect to new independent claims 42, 57, 66 and 69.

6. Beckwith is directed to producing a real-time visual display of the terrain over which an aircraft is passing. (*See*, Beckwith, col. 1, lns. 13-17.) To insure proper navigation and control of an aircraft flying at low altitudes, a pilot must visually observe the terrain over which the aircraft is passing. (*See*, Beckwith, col. 1, lns. 23-37.) Beckwith teaches a “moving map display” system in which terrain data is digitally stored in a compressed format. The terrain data is presented on a display in the form of a two-dimensional moving map that is automatically oriented based on aircraft navigational and positional information provided by the systems on the aircraft. (*See*, Beckwith, col. 1, lns. 45-52.) In contrast to then-conventional systems which shade the two-dimensional image to provide a three-dimensional effect, Beckwith provides a perspective processing circuit that renders an actual three-dimensional display. (*See*, Beckwith, col. 1, lns. 60-64; col. 2, lns. 48-66.)

7. Applicants’ claimed invention is directed to compositing three-dimensional images in a two-dimensional graphics imaging pipeline. As noted in prior Responses, graphics imaging pipelines can be one of three types: a volume rendering pipeline, a two-dimensional (2D) imaging pipeline and a three-dimensional (3D) rendering pipeline. Each pipeline has specific structure to perform specific operations on specific types of data. Conventional 2D imaging or pixel pipelines process 2D pixel data; a 3D or geometric pipeline processes primitive data; and a volume or voxel rendering pipeline processes voxel data. In addition to manipulating 2D images like conventional 2D pixel pipelines, Applicants’ claimed graphics imaging pipeline composites separately generated three-dimensional (3D) images represented by pixel data comprising X,Y,Z coordinate and color data. (*See*, Amendment A, paras. 6-11.)

8. Moving map display systems such as that disclosed in Beckwith provide real-time visual display of a terrain based on stored digital information. Memory map display systems are not nor do they contain a graphics imaging pipeline. With regard to the specific basis of rejection, for example, the Examiner asserts that Beckwith teaches a two-dimensional imaging pipeline, citing column 5, lines 8-41 of Beckwith. There, Beckwith describes nothing more than the use of a cassette tape for storing flight mission data. Referring to Beckwith's Figure 1, memory management controller 25 retrieves flight mission data from cassette 10 and stores the data in an intermediate memory 20 and, ultimately, a scene memory 35. (*See*, Beckwith, col. 5, ln. 26 through col. 6, ln. 51.) As noted, this data is presented on a display for the pilot based on the location of the aircraft relative to the stored terrain to provide the pilot with a view of the terrain immediately below the aircraft. As another example, the Examiner asserts that Beckwith's use of elevation data suggests using Z coordinate data as claimed. However, aircraft elevation data is used to locate an aircraft position relative to the stored terrain data. The addresses of the elevation data is read out of the scene memory representing points in the two-dimensional scene of the terrain. This 2D scene location is transformed to positions in a perspective scene of the terrain. (*See*, Beckwith, col. 3, lns. 21-38.)

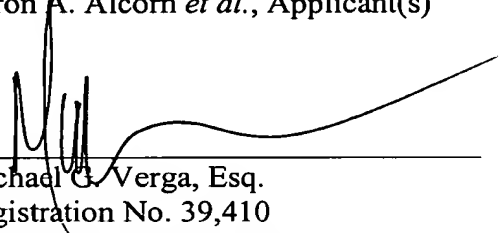
9. Beckwith, therefore, neither teaches nor does it suggest Applicants' invention. Moving map display systems store, retrieve and display terrain data. Beckwith neither teaches nor suggests a graphics imaging pipeline nor compositing of 3D images as claimed. For at least the above reasons, Applicants respectfully assert that a *prima facie* case for obviousness cannot be made by the Examiner with respect to new claims 42-69.

CONCLUSION

10. In view of the foregoing, this application should be in condition for allowance. A notice to this effect is respectfully requested.

Respectfully submitted
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